

642-211

Dart Aerospace Ltd.

Date: Thursday, 19/02/2009 1:57:16 PM
 User: Julie Dawson

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: HIGH GEAR SKIDTUBE ASSEMBLY 206 A/B
Job Number	: 45905A		
Estimate Number	: 10163		
P.O. Number	:	Part Number	: D206642241
This Issue	: 19/02/2009	S.O. No.	:
Prsht Rev.	: NC	Drawing Number	: D2650 REV F
First Issue	: / /	Project Number	: N/A
Previous Run	: 45904A	Drawing Revision	: F
Written By	:	Material	:
Checked & Approved By	: <u>DP 09.02.19</u>	Due Date	: 09/03/2009
Comment	: Est Rev:M 04.12.02 Revised procedural steps	Qty:	1
		Um:	Each

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
-----	----	------------------

**Comment:** DOCUMENT CONTROL

Photocopy bluefile & type labels per PPP D206-642-241

CHG003

N/A HJ

2.0	D2620	Skidtube, 206 Skidtube
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**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2620 Bent Tube 3" OD

B44502

DP 9-2-19

3.0	D32861	Doubler
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**Comment:** Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 D3286-1 Doubler

B44286

② H 9-2-24

4.0	D2647	Cap
-----	-------	-----

**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2647

Fwd Cap

B43846

BF 9-2-20

5.0	SKIDTUBES 1	SKIDTUBESS RESOURCE 1
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**Comment:** LANDING GEAR RESOURCE 1

1-Deburr Fwd edge of tube

DP 9-2-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Part Number: D206642241

Job Number:



Seq. #:

Machine Or Operation:

Description :

2- Remove ridge on inside of Fwd edge of tube as per Dwg D2650

DP 9-2-19

3-Weld Fwd Cap as per Dwg D2650. Use aluminum rod. Grind D2647 to fit as required.

Pick:

Qty Part Number Description Batch

A/R Aluminum Rod M110676 / M109213 BE 9-2-20

4-Grind weld flush to cap on top surface only.

BE 9-2-20

5-Cut Aft end as per dwg 2650 from front of tube and Deburr

6-Remove inner indexing ridge on Aft end of skidtube as per Dwg D2650

9-2-24

7-Open holes for Aft end cap as per Dwg D2650 with #30 Drill Bit using DT8025.

8-Drill pilot holes using Dt 8167.

9-Locate DT8732 from inner Aft saddle hole & 3rd crossbolt hole. Insert D3286-1 doubler using DT8732 & D206-642-241-T1, then locating doubler off of 3/16" holes, cleco DT8732 & doubler leaving DT8732 for added support.

10- Drill D3286-1 doubler rivet holes in tube using # 40 drill, spot drilling doubler at the same time.

11-Working from the center out, drill # 30 holes into D3286-1 doubler. Cleco each hole as it is being drilled. Verify angle of holes to accommodate rivet heads.

12-Remove 3/16" cleco's only and open GHW holes to Ø0.500" as per Dwg D2650

13-Remove D3286-1 doublers, identify orientation, deburr, then attach them to the workorder

14-Remove indexing edge using DT8741 as per Dwg D2650

15-C'sink GHW rivet holes as per Dwg D2650

6.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

hds measure 0.005"
off



509/02/24 (10)

W/O:		WORK ORDER CHANGES					
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Machine Or Operation:

Description :

7.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open crossbolt holes to Ø0.3125"

2-Drill pilot holes using DT8028-3, then open to Ø0.297" as per Dwg D2650. Open Aft cap hole #6.

3-Deburr tube and blow out chips from inside the tube

M
9-2-24

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

① M 9-2-24

9.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DP 9-2-24

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open holes to finished size as per Dwg D2650, D2650-3 Drilling Detail (without cutting fluid)

2-C'sink crossbolt spacer holes as per Dwg D2650(without cutting fluid)

3-Deburr and blow out all chips from inside the tube

M
9-2-24

11.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

holes are still aligning

509/62/24 (H)

12.0

CR3212404

Cherry Rivet



Comment: Qty.: 52.0000 Each(s)/Unit Total : 52.0000 Each(s)

Pick:

Qty Part Number Description Batch

52 CR3212-4-04 Rivet

M110399

53 M 9-2-24

W/O:		WORK ORDER CHANGES					
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Part Number: D206642241

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

D26543

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number

Description Batch

1 D2654-3

Web

04590

D 11 9-2-24

14.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Locate, install and rivet doublers as per Dwg D2650. Micro-shave rivets as required

2-Bond D2654-3 web in place as per QSI 015. Ensure holes line up. Allow 12 Hrs. cure time before cutting

Start Date: 9-2-24 Time: 3:45

Finish Date: 9/2/25 Time: 8:10am

W 9-2-24

Pick:

Qty Part Number

Description Batch

A/R Sikaflex-291

M109337

Sikaflex expire date:

9-7-1

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

09/02/25

16.0

D2649

Cross Bolt Spacer



Comment: Qty.: 18.0000 Each(s)/Unit Total: 18.0000 Each(s)

Pick:

Qty Part Number

Description Batch

18 D2649

Crossbolt spacer

B44364

BE 09/02/25

17.0

D32863

Spacer



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number

Description Batch

2 D3286-3

Spacer

B 43862

BE 09/02/25

W/O:		WORK ORDER CHANGES					
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Job Number: 45905A

Part Number: D206642241

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-remove alodine from around hole and prepare for welding

BE 09/02/25

2-Insert D2649 crossbolt spacers. Weld as per QSI 004 and Dwg D2650. Remember to back drill each hole to 0.25" before welding the other side. Use aluminum rod.

Pick:

Qty Part Number Description Batch

A/R Aluminum Rod M109213 BE 09/02/25

3-Grind welds flush as per Dwg D2650.

BE M9-2-26

4-Using DT8733, insert (2) D3286-3 spacers as per QSI 004 and Dwg D2650. Remember to back drill each hole to Ø0.402" before welding other side. Use SS rod as required.

A/RSS Rod NONE BE 09/02/25

5-Counterbore 5/16" x 0.750" deep except 7th hole from Aft end as per Dwg D2650. Deburr

M9-2-26

19.0

CCR264SS33

Cherry Rivet



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 CCR264SS3-3 Rivets M110625

② M9-2-26

20.0

CR3212403

Cherry Rivet



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Cherry Rivet

batch: M110139

② M9-2-26

21.0

D2680041

Nut Plate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2680-041 Nut Plate

① M34599 M9-2-26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 45905A

Part Number: D206642241

Job Number:



Seq. #:

Machine Or Operation:

Description :

22.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install D2680-041 Nut Plate as per Dwg D2650

D H 9-2-26

23.0

QC9



VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

QC9-509/02/26 09-02-26 (1)

24.0

QC5



INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

509/02/26

25.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Pressure wash as per QSI 005

BF 09-03-02 (1)

26.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref. 4.3.5.1) as per QSI 005 4.3. Make sure Nut Plate Thread is protected using paint screw, and mask GHW studs.

START TIME: 3:40

OVEN TEMPERATURE: 320°

FINISH TIME: 4:10

FL 09/03/02 (1)

27.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-03-04 (X)

28.0

D26483

Wearpad



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

4 D2648-3

Wearpad

1344548

FL 09-03-04 (X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 45905A

Part Number: D206642241

Job Number:



Seq. #:

Machine Or Operation:

Description :

29.0

D265613

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2656-13

Wearshoe

B42772

JS

30.0

D265621

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2656-21

Wearshoe

B42776

JS

31.0

D265633

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2656-33

Wearshoe

B320756

JS

32.0

D34291

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D3429-1

Wearpad

B345637

JS

33.0

ALS41032130

Insert



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

44 ALS4-1032-130 Inserts

M108606

or (see QSI 017)

X

JS

09-03-04

JS

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Job Number: 45905A

Part Number: D206642241

Job Number:



Seq. #:

Machine Or Operation:

Description :

34.0

AN960JD10L

Washer



Comment: Qty.: 46.0000 Each(s)/Unit Total : 46.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

46 AN960JD10L

Washer

M1109632

MS

35.0

MS27039108

Screw



Comment: Qty.: 46.0000 Each(s)/Unit Total : 46.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

46 MS27039-1-08

Screw

M110467

MS

36.0

D26511

Plug



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

18 D2651-1

Plugs

B43996

MS

37.0

D26513

O-Ring



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

18 D2651-3

O-Rings

B43849

MS

38.0

MS27039406

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 MS27039-4-06

Screw

M1109061

MS

39.0

AN960JD416

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 AN960JD416

Washer

M1108161

MS

09-09-04

MS

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Seq. #:

Machine Or Operation:

Description :

40.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1]

✓ 1- Install inserts & wearpads as per dwg D2922. Use a drop of Sikaflex inside insert holes before installing wearpad/wearplate.

A/R Sikaflex-291 M109883

Sikaflex expire date: 0911

✓ 2- Install D2651-3 O-Rings on D2651-1 plugs with Petroleum Jelly and install plugs as per Dwg D2650 (D2650-3 detail). Clean excess adhesive.

✓ 3- Install MS27039-4-06 Screw as per DEO 9153.

09-03-04

41.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2646 Aft Cap 1343801

ju

42.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1- Install D2646 Aft Cap and seal with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 M109883

Sikaflex expire date: 0911

09-03-04

2- Wing Walk as per Dwg D2650-3 and QSI 005 4.4

Batch: M110454

09-03-06

43.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09/03/06

44.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

09/03/06

W/O:		WORK ORDER CHANGES					
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Seq. #:

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Description :

45.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D206664241 IF APPLICABLE

Location: _____

PPP Rev: _____

PPP

45905

10/03/08

(1)

46.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/03/12

Job Completion



mf
09-03-12

W/O:		WORK ORDER CHANGES					
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QTY -1	QTY -3	QTY -5	QTY -7	PART NUMBER	DESCRIPTION
X				D2650-1	SKIDTUBE ASSEMBLY
	X			D2650-3	SKIDTUBE ASSEMBLY
		X		D2650-5	SKIDTUBE ASSEMBLY
			X	D2650-7	SKIDTUBE ASSEMBLY
1	1	1	1	D2600-1-160	EXTRUSION
1				D2654-1	WEB
	1			D2654-3	WEB
		1		D2654-5	WEB
			1	D2654-7	WEB
1	1	1	1	D2646	AFT CAP
1	1	1	1	D2647	CAP
17	18	19	23	D2649	CROSS BOLT SPACER
16	18	14	22	D2651-1	PLUG
16	18	14	22	D2651-3	O-RING
1	1	1	1	D2680-041	NUT PLATE
2	2			D3286-1	DOUBLER
2	2			D3286-3	STUD
42	44	54	60	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, ALS7-1032-130)
2	2	2	2	AN960JD10L	WASHER
2	2	2	2	CCR264SS3-3	RIVET
2	2	2	2	CR3212-4-03	RIVET
2	2	2	2	MS27039-1-08	SCREW
1	1	1	1	MS27039-4-06	SCREW
1	1	1	1	AN960JD416	WASHER
52	52			CR3212-4-04	RIVET

F

F

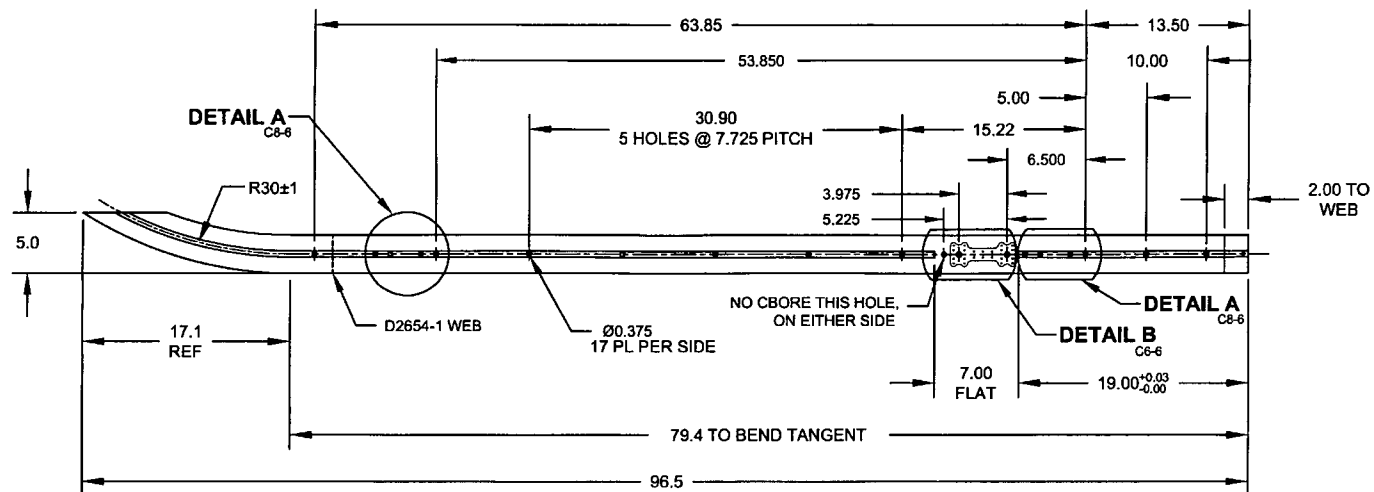
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: -CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
-POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
-BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) WELD PER DART QSI 004
- 9) DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- 10) BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/291 ADHESIVE PER DART QSI 015
- 11) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE)
- 12) DRILL 0.297 FOR ALS7-1032-130 INSERTS USING TEMPLATE DT8056-1 ON -1 TUBE, DT8056-3 ON -3 TUBE, DT8056-5 ON -5 TUBE, AND DT8056-7 ON -7 TUBE. INSTALL INSERTS AFTER FINISH.
- 13) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

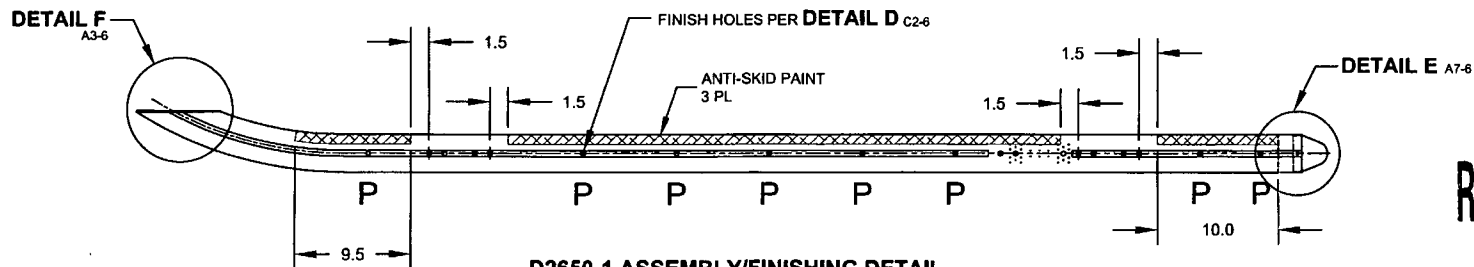
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REV.	DESCRIPTION	BY	DATE
F	DRAWING UPDATED TO CURRENT STANDARDS. SHT 6 ADDED. ALL SECTION AND DETAIL VIEWS TRANSFERRED TO SHT 6. SHT 1 IN PL PART D2649 QTY UPDATED. SHT 6 SECT C-C GRIND INSTRUCTIONS DELETED FROM NOTE 7 (SEE NCR 239).	AJS	08.08.08
E	RMOVE CBORE, CHG DRILL, ADD CHAMFER	CP	06.03.30
D	REDRAW; INCCRP. DE09136/9153/9163 MOD GROUND HANDLING ON D2650-1/-3	CP	04.05.17
C	CHANGE HOLE PATTERN AND FRONT END	DS	97.10.29
B	AS MANUFACTURED CHANGES	DS	97.06.26
A	NEW ISSUE	DS	97.03.25
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D2650-1 BENDING/DRILLING DETAIL

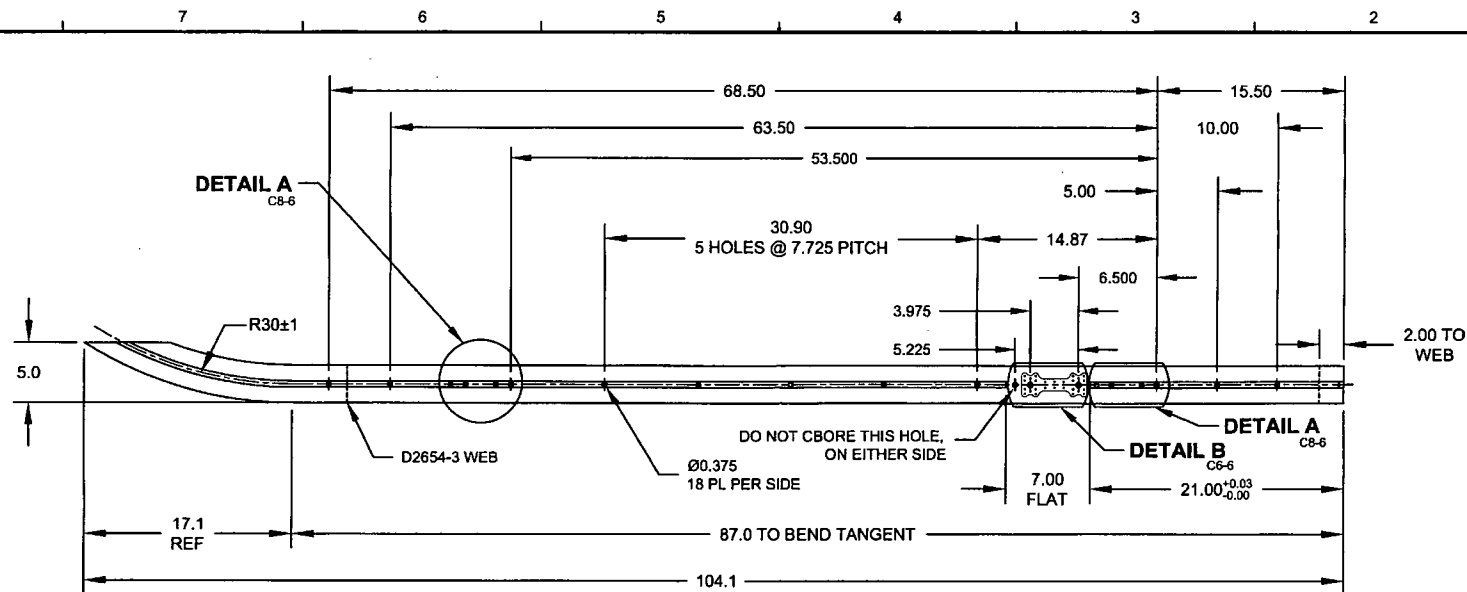


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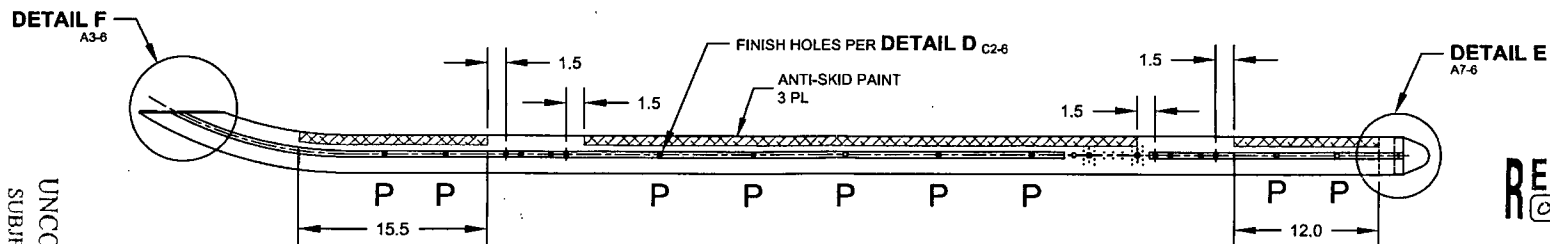
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D2650-3 BENDING/DRILLING DETAIL

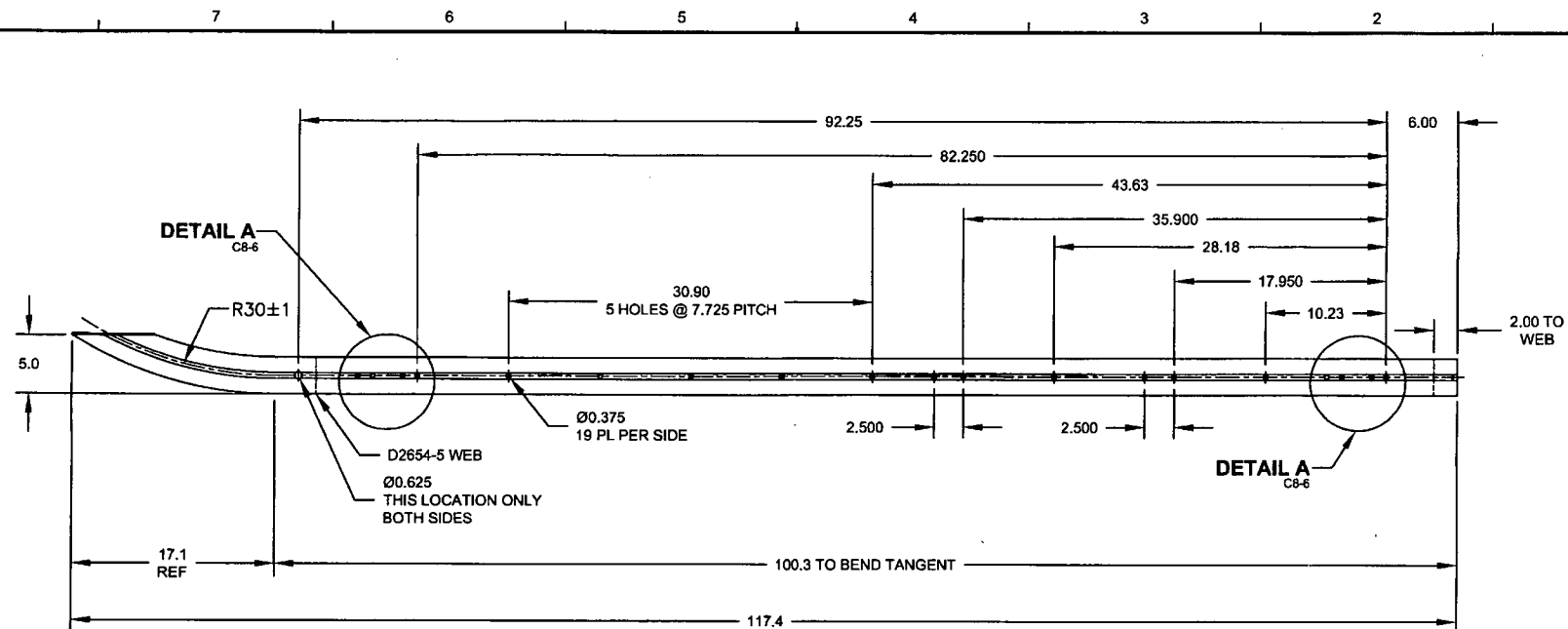


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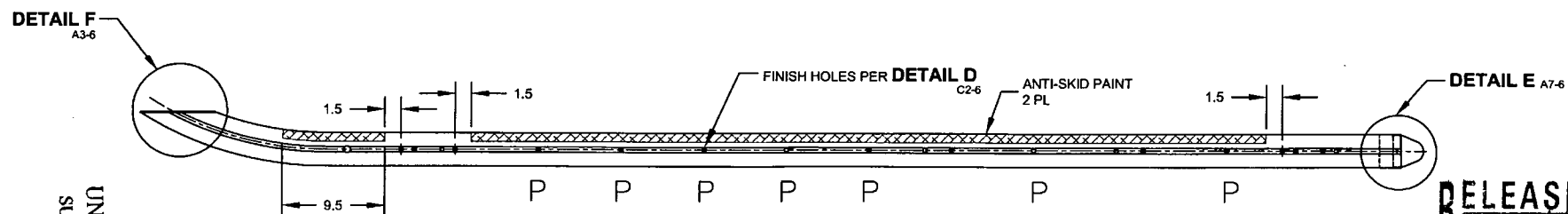
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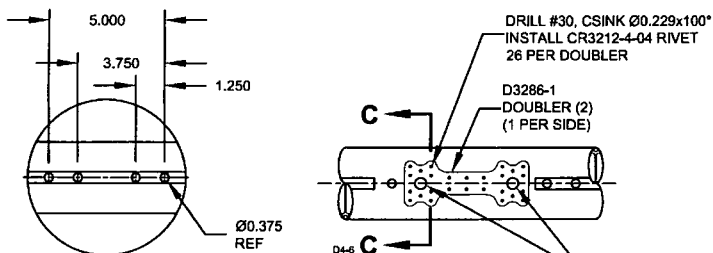
D2650-5 BENDING/DRILLING DETAIL



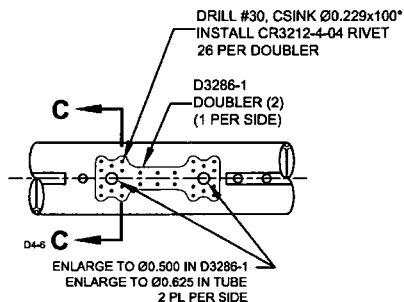
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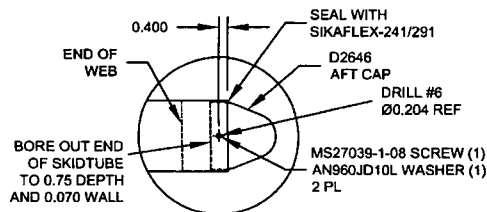
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DETAIL A
SCALE 2X
C2-2
D7-2
C2-3
D7-3
C2-4
D7-4
C2-5
D8-5

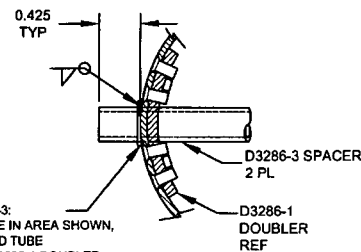


DETAIL B
SCALE 2X
C3-2
C3-3



DETAIL E
SCALE 2X
B2-2
B2-3
B1-4
B1-5

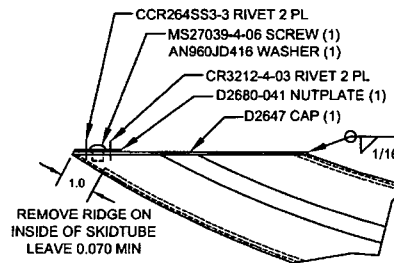
SECTION C-C
SCALE NONE
C7-6



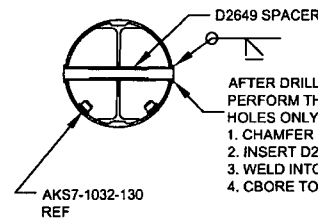
- TO INSTALL D3286-1/3:
1. GRIND OFF FLANGE IN AREA SHOWN, FLUSH WITH ROUND TUBE
 2. LOCATE & DRILL D3286-1 DOUBLER USING DT3286-1T1
 3. ENLARGE HOLES IN D3286-1 TO Ø0.500
 4. ENLARGE HOLES IN TUBE TO Ø0.625 AND CHAMFER HOLE 0.030x45°
 5. RIVET D3286-1 TO TUBE
 6. INSERT D3286-3 SPACER
 7. WELD IN PLACE.



ORIENTATION OF
D2680-041



DETAIL F
SCALE NONE
B8-2
B8-3
B8-4
B8-5



DETAIL D
FOR Ø0.375 HOLES ONLY
SCALE 3X
B4-2
B4-3
B4-4
B4-5

DETAIL F NOTES:

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D2647 (TRIM AS NECESSARY)
4. WELD D2647 IN PLACE PER DART QSI 004
5. GRIND FLUSH
6. RIVET D2680-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D2680-041 PRIOR TO FINISH

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NO. 191

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Berley Elliot
Job number: 45124 A
Part number: D058 670 041 / D206 642 241
Description: 04 58 / 206 skid
Welding Process: Tig ☒ Mig ☐
Base material: Aluminium
Current: AC ☐ DC ☐

TEST REQUIREMENTS AND RESULTS

Visual:
Penetration:

pass ☒ fail ☐
pass ☒ fail ☐

UNACCEPTABLE

Cracks:
Undercut:
Pin holes:
Overlap (cold lap)
Porosity (surface):
Coloration:

pass ☒ fail ☐
pass ☒ fail ☐
pass ☒ fail ☐
pass ☒ fail ☐
pass ☒ fail ☐
pass ☒ fail ☐

Qualifier Pet. Dignel Date of Test Coupon 9-1-20
Welder Berley Elliot Date of Test Coupon 9-1-20

The above named individual is qualified in accordance with AWS D17.1.2001 to weld